

WHAT IS CLAIMED IS:

1. A food waste disposer having a housing and a rotational source, comprising:
a food conveying section of the housing for receiving food waste;
a motor section of the housing having the rotational source; and
a grinding section of the housing receiving the food waste from the food conveying section and having a discharge outlet, the grinding section comprising:
a stationary ring disposed in the housing and having an inner wall,
a rotatable plate coupled to the rotational source and positioned for rotation relative to the inner wall of the stationary ring,
a fixed lug attached to the rotatable plate, and
a movable lug attached to the rotatable plate.
2. The food waste disposer of claim 1, wherein the inner wall of the stationary ring defines a plurality of teeth.
3. The food waste disposer of claim 1, wherein the fixed lug has an end for passing adjacent the inner wall of the stationary ring.
4. The food waste disposer of claim 1, wherein the movable lug has an end for passing adjacent the inner wall of the stationary ring.
5. The food waste disposer of claim 1, further comprising another fixed lug attached to a central portion of the rotatable plate.
6. The food waste disposer of claim 1, further comprising a rotatable lug attached to a peripheral portion of the rotatable plate and having a plurality of hooked surfaces passing adjacent the inner wall of the stationary ring during rotation.
7. The food waste disposer of claim 6, further comprising a breaker fixedly attached to the rotatable plate adjacent the rotatable lug.

8. A food waste disposer having a rotational source, comprising:
a rotatable member coupled to the rotational source; and
a stationary plate disposed adjacent the rotatable member and defining a plurality of apertures therethrough,
wherein at least one first portion of the rotatable member shears over at least some of the apertures in the first stationary plate to shear the food waste.
9. The food waste disposer of claim 8, wherein the apertures define an open area in the stationary plate of approximately 1/3 of a surface area of the stationary plate.
10. The food waste disposer of claim 8, wherein the rotatable member comprises a rotatable plate having a central portion attached to the rotational source.
11. The food waste disposer of claim 10, wherein the rotatable plate and the stationary plate are situated on a plane.
12. The food waste disposer of claim 10, wherein the stationary plate has a central opening in which the rotatable plate is positioned for rotation.
13. The food waste disposer of claim 11, wherein the stationary plate further comprises a plurality of teeth around the central opening forming additional apertures about the rotatable plate.
14. The food waste disposer of claim 10, wherein the at least one first portion of the rotatable plate comprises an impact member having a surface or edge sliding on the stationary plate and passing adjacent the apertures in the stationary plate.
15. The food waste disposer of claim 14, wherein the impact member comprises a lug fixedly or movably attached to the rotatable plate.

16. The food waste disposer of claim 10, wherein the at least one first portion of the rotatable plate shears over the apertures in the first stationary plate by passing at a separation distance of about 0 to 2 millimeters above the apertures.

17. The food waste disposer of claim 8, wherein the rotatable member comprises an impeller coupled to the rotational source.

18. The food waste disposer of claim 17, wherein the at least one first portion of the impeller comprises an impact member on the impeller having a surface or edge sliding on the stationary plate and passing over at least some of the apertures in the stationary plate.

19. The food waste disposer of claim 18, wherein the impact member comprises a lug fixedly attached to the impeller.

20. The food waste disposer of claim 18, wherein the impact member comprises a lug movably attached to the impeller.

21. The food waste disposer of claim 17, wherein the at least one first portion of the impeller further comprises at least one wing of the impeller having a surface or edge sliding on the stationary plate and passing over at least some of the apertures in the stationary plate.

22. The food waste disposer of claim 8, further comprising a stationary ring having an inner wall disposed about the stationary plate, wherein at least a second portion of the rotatable member passes adjacent the inner wall for grinding food waste during operation.

23. The food waste disposer of claim 22, wherein the stationary ring comprises a plurality of teeth formed on the inner wall.

24. The food waste disposer of claim 22, wherein the at least one second portion of the rotatable member comprises an impact member on the rotatable member having an end for passing adjacent the inner wall.
25. The food waste disposer of claim 24, wherein the impact member comprises a lug fixedly attached to the rotatable member.
26. The food waste disposer of claim 24, wherein the impact member comprises a lug movably attached to the rotatable member.
27. A food waste disposer having a housing, comprising:
a food conveying section of the housing for receiving food waste;
a motor section of the housing having a rotational source; and
a grinding section of the housing receiving the food waste from the food conveying section and having a discharge outlet, the grinding section comprising:
a stationary plate disposed in the housing and defining a plurality of apertures therethrough, the apertures communicating the food conveying section with the discharge outlet; and
a rotatable member coupled to the rotational source and positioned for rotation relative to the stationary plate, at least one first portion of the rotatable member shearing over at least some of the apertures in the first stationary plate to shear the food waste.
28. The food waste disposer of claim 27, wherein the stationary plate defines a central opening, and wherein the rotatable member comprises a rotatable plate having a central portion attached to the rotational source and positioned for rotation in the central opening of the stationary plate.
29. The food waste disposer of claim 28, wherein the rotatable plate and the stationary plate are situated on a plane.

30. The food waste disposer of claim 28, wherein the at least one first portion of the rotatable plate comprises an impact member attached to the rotatable plate and having a surface or edge sliding on the stationary plate and passing over at least some of the apertures in the stationary plate.

31. The food waste disposer of claim 30, wherein the impact member comprises a lug fixedly or movably attached to the rotatable plate.

32. The food waste disposer of claim 27, wherein the at least one first portion of the rotatable member shears over the apertures in the first stationary plate by passing at a separation distance of about 0 to 2 millimeters above the apertures.

33. The food waste disposer of claim 27, wherein the rotatable member comprises an impeller coupled to the rotational source.

34. The food waste disposer of claim 33, wherein the at least one first portion of the impeller comprises an impact member on the impeller having a surface or edge sliding on the stationary plate and passing over at least some of the apertures in the stationary plate.

35. The food waste disposer of claim 34, wherein the impact member comprises a lug fixedly attached to the impeller.

36. The food waste disposer of claim 34, wherein impact member comprises a lug movably attached to the impeller.

37. The food waste disposer of claim 33, wherein the at least one first portion of the impeller further comprises at least one wing of the impeller having a surface or edge sliding on the stationary plate and passing over at least some of the apertures in the stationary plate.

38. The food waste disposer of claim 27, wherein the apertures define an open area in the stationary plate of approximately 1/3 of a surface area of the stationary plate.

39. The food waste disposer of claim 27, wherein the stationary plate further comprises a plurality of teeth around the central opening forming additional apertures about the rotatable member.

40. The food waste disposer of claim 27, further comprising a stationary ring coupled to the stationary plate and having an inner wall, wherein a second portion of the rotatable member passes adjacent the inner wall of the stationary ring for grinding food waste during operation.

41. The food waste disposer of claim 40, wherein the inner wall defines a plurality of teeth.

42. The food waste disposer of claim 40, wherein the at least one second portion of the rotatable member comprises an impact member having an end for passing adjacent the inner wall.

43. The food waste disposer of claim 42, wherein the impact member comprises a lug fixedly attached to the rotatable member.

44. The food waste disposer of claim 42, wherein the impact member comprises a lug movably attached to the rotatable member.

45. A food waste disposer having a housing, comprising:
a food conveying section of the housing for receiving food waste;
a motor section of the housing having a rotational source; and
a grinding section of the housing receiving the food waste from the food conveying section and having a discharge outlet, the grinding section comprising:
first means coupled to the rotational source for impacting food waste, and
second means coupled to the disposer for shearing food waste in combination with the first means.
46. The food waste disposer of claim 45, wherein the first means further comprises means for rotating relative to the rotational source.
47. The food waste disposer of claim 45, wherein the first means further comprises means for sliding relative to the rotational source.
48. The food waste disposer of claim 45, further comprising third means for grinding food waste in combination with the first means.
49. A food waste disposer having a housing and a rotational source, comprising:
a stationary ring coupled to the housing and having an inner wall;
a rotatable plate coupled to the rotational source and positioned for rotation relative to the inner wall of the stationary ring, the rotatable plate having an edge forming a gap with the inner wall for conveying food waste; and
at least one cutting element mounted in the housing of the disposer, the at least one cutting element having a portion extending at least partially across the gap for reducing food waste conveyed through the gap.
50. The food waste disposer of claim 49, wherein the portion of the at least one cutting element comprises a blade.

51. The food waste disposer of claim 49, wherein one end of the at least one cutting element is mounted in a recess defined in the housing of the disposer.
52. The food waste disposer of claim 51, wherein a fastener attaches the one end of the at least one cutting element to the housing of the disposer.
53. The food waste disposer of claim 49, wherein the rotatable plate comprises an impact member attached thereto for impacting food waste.
54. The food waste disposer of claim 53, wherein the impact member is fixedly attached to the rotatable plate.
55. The food waste disposer of claim 53, wherein the impact member is movably attached to the rotatable plate.
56. The food waste disposer of claim 49, wherein the inner wall of the stationary ring defines a plurality of teeth.
57. The food waste disposer of claim 49, wherein the at least one cutting element is positioned adjacent an undersurface of the rotatable plate.
58. A food waste disposer having a housing and having a rotational source, comprising:
 - a stationary ring coupled to the housing and having an inner wall;
 - a rotatable plate coupled to the rotational source and positioned for rotation relative to the inner wall of the stationary ring, the rotatable plate having an edge forming a gap with the stationary ring for conveying food waste; and
 - at least one cutting element mounted on the rotatable plate and having a portion extending at least partially across the gap for reducing food waste conveyed through the gap.

59. The food waste disposer of claim 58, wherein the rotatable plate comprises an impact member attached thereto for impacting food waste.

60. The food waste disposer of claim 59, wherein the impact member is fixedly attached to the rotatable plate.

61. The food waste disposer of claim 59, wherein the impact member is movably attached to the rotatable plate.

62. The food waste disposer of claim 58, wherein the inner wall of the stationary ring defines a plurality of teeth.

63. The food waste disposer of claim 58, wherein the at least one cutting element comprises a blade disposed in a housing mounted on the rotatable plate.

64. The food waste disposer of claim 58, wherein the at least one cutting element is fixedly mounted on the rotatable plate.

65. The food waste disposer of claim 58, wherein the at least one cutting element cutting element is pivotably mounted on the rotatable plate.

66. The food waste disposer of claim 58, wherein the at least one cutting element is mounted on an undersurface of the rotatable plate.

67. The food waste disposer of claim 58, wherein the at least one cutting element comprises a hub rotatably mounted on the rotatable plate, and wherein the portion comprises a blade attached to the hub.

68. The food waste disposer of claim 67, further comprising an aperture defined in the rotatable plate, wherein the blade passes over the aperture for reducing food waste conveyed therethrough.
69. The food waste disposer of claim 67, wherein a drive member imparts rotation to the hub during operation.
70. The food waste disposer of claim 69, wherein the drive member comprises a belt or gear.
71. A food waste disposer having a housing, comprising:
 - a grinding plate positioned for rotation in the housing;
 - a first motor disposed in the housing for rotating the grinding plate;
 - at least one blade positioned for rotation in the housing adjacent the grinding plate; and
 - a second motor disposed in the housing for rotating the at least one blade adjacent the grinding plate.
72. The food waste disposer of claim 71, wherein the first motor comprises a first shaft coupled to the grinding plate.
73. The food waste disposer of claim 72, wherein the second motor comprises a second shaft coupled to the at least one blade.
74. The food waste disposer of claim 72, wherein the second shaft defines an internal bore through which a portion of the first shaft is disposed.
75. The food waste disposer of claim 74, further comprising a bearing positioned between the internal bore of the second shaft and the first shaft.

76. The food waste disposer of claim 71, wherein the second motor is housed in the disposer between the first motor and the at least one blade.

77. The food waste disposer of claim 71, wherein the second motor is substantially smaller than the first motor.

78. The food waste disposer of claim 71, wherein the grinding plate rotates opposite to the at least one blade.

79. The food waste disposer of claim 71, wherein the first motor comprises an induction motor having a first stator mounted in the disposer and having a first rotor positioned for rotation relative to the first stator.

80. The food waste disposer of claim 71, further comprising a stationary ring having an inner wall and housed in the disposer such that the grinding plate is positioned for rotation relative to the inner wall.

81. The food waste disposer of claim 71, wherein the grinding plate has one or more impact members attached thereto.

82. The food waste disposer of claim 81, wherein the one or more impact members are fixedly attached to the plate.

83. The food waste disposer of claim 81, wherein the one or more impact members are movably attached to the plate.

84. The food waste disposer of claim 71, wherein an end of the at least one blade extends beyond an edge of the grinding plate.

85. The food waste disposer of claim 71, wherein the at least one blade passes over an aperture defined in the grinding plate.

86. A food waste disposer having a rotational source, comprising:
a rotatable plate coupled to the rotational source; and
a lug rotatably coupled to the rotatable plate,
wherein the lug continuously rotates with respect to the plate during operation of
the disposer.
87. The food waste disposer of claim 86, wherein the lug comprises a first surface on
one side for engaging food waste.
88. The food waste disposer of claim 87, wherein first surface defines a hooked tooth.
89. The food waste disposer of claim 86, wherein the lug comprises a second surface
on another side for engaging water flow to impart rotation to the lug.
90. The food waste disposer of claim 89, wherein the second surface defines a pitch.
91. The food waste disposer of claim 86, wherein the lug comprises a shaft rotatably
disposed in a hole in the rotatable plate.
92. The food waste disposer of claim 91, further comprising a drive member coupled
to the shaft of the lug and imparting rotation to the lug.
93. The food waste disposer of claim 91, wherein the drive member comprises a belt
or gear.
94. The food waste disposer of claim 86, further comprising a breaker attached to the
rotatable plate adjacent the lug.
95. The food waste disposer of claim 86, wherein the lug is positioned on an upper
surface of the rotatable plate.

96. A food waste disposer having a housing and having a rotational source with a shaft, the food waste disposer comprising:

a rotatable plate coupled to the shaft of the rotational source and positioned for rotation in the housing;

a first hub mounted about the shaft;

a second hub rotatably mounted on the rotatable plate and having at least one cutting element attached thereto for reducing food waste; and

a drive member connecting the first hub to the second hub for rotating the second hub during operation.

97. The food waste disposer of claim 96, wherein the second hub is mounted on an undersurface of the rotatable plate adjacent a discharge outlet of the disposer.

98. The food waste disposer of claim 96, wherein the rotatable plate comprises an impact member for impacting food waste.

99. The food waste disposer of claim 98, wherein the impact member is fixedly attached to the plate.

100. The food waste disposer of claim 98, wherein the impact member is movably attached to the plate.

101. The food waste disposer of claim 96, further comprising a stationary ring having an inner wall and housed in the disposer such that the rotatable plate is positioned for rotation relative to the inner wall.

102. The food waste disposer of claim 101, wherein the inner wall of the stationary ring defines a plurality of teeth.

103. The food waste disposer of claim 96, wherein the rotatable plate has an edge, and wherein an end of the at least one cutting element extends beyond the edge of the rotatable plate for reducing food waste conveyed past the edge.

104. The food waste disposer of claim 96, wherein the at least one cutting element comprises a blade attached to the hub.

105. The food waste disposer of claim 96, further comprising an aperture defined in the rotatable plate, wherein the at least one cutting element passes over the aperture for reducing food waste conveyed therethrough.

106. The food waste disposer of claim 96, wherein the drive member comprises a belt or gear.